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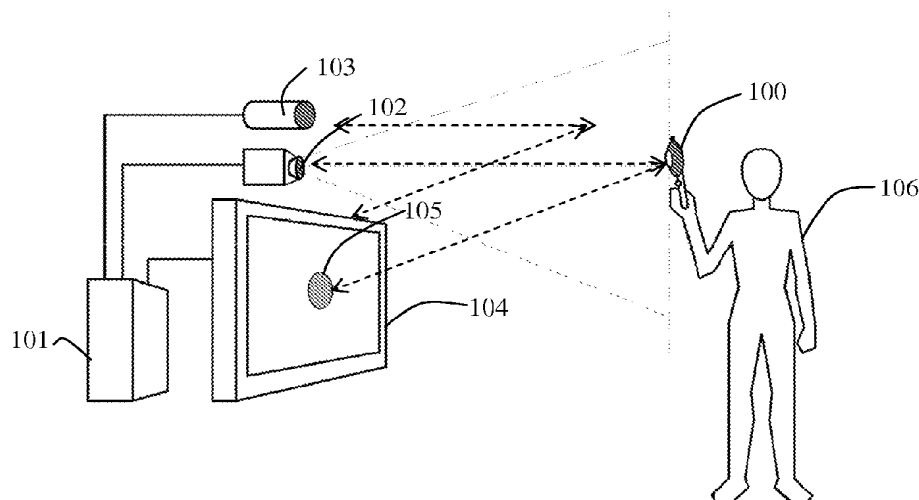
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[Continued on next page]

(54) Title: CONTROL DEVICE WITH HYBRID SENSING SYSTEM COMPRISED OF VISION-BASED PATTERN RECOGNITION AND ELECTRONIC SIGNAL TRANSMISSION



(57) Abstract: The invention provides a method and apparatus for use as a control device for controlling a computing system. The method includes a hybrid sensing system comprised of computer- vision- based pattern recognition and electronic signal transmission. The control device is embedded with a designated color light pattern and an electronic signal transmitter. The color light pattern within the field of sight of a video image capturing device is detected and identified by a computing system. Methods for configuring the color light pattern are included. The control device can be handheld or attached to a human body. The movement of the color light pattern in the 3-dimensional space will provide 3-dimensional positional information of a virtual pointer to the computing system. The activation of the electronic signal transmitter by pressing a control button on the control device will trigger input commands to the computing system.

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## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2007/084265****A. CLASSIFICATION OF SUBJECT MATTER****G06F 3/033(2006.01)i, G06K 9/22(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 8 G06F, G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility Models and Applications for Utility Models since 1975

Japanese Utility Models and Applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS (KIPO internal) " Keyword : (image, pattern, video), (recognize, recognition, detect, capture), (position, location, place, point), (camera, ccd, camcoder), (3 dimension, three dimension), (orientation, direction, rotation) "

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
1-4,6-9,15-22 5,10-14	CA 2314548 A1 (RAYMOND R. STAAB, et al. ) 02 Feb. 2001 Abstract, Claims 1-24, Figs.3-7, Page 1 Line 3-Page 4 Line 14	X A
1-4,6-9,15-22 5,10-14	JP 2006-178948 A ( SONY COMPUTER ENTERTAINMENT INC. ) 06 Jul. 2006 Abstract, Claims 1-7, Figs.2-5, Paragraphs <1>-<36>	X A
1-4,6-9,15-22 5,10-14	US 5297061 A ( DANIEL F. DEMENTHON, et al. ) 22 Mar. 1994 Abstract, Claims 1,9, Figs.1-3,9, Col.1 Line 10-Col.4 Line 42	X A
1-22	US 5534917 A ( FRANCIS MACDOUGALL ) 09 Jul. 1996 Abstract, Claims 1,11,20,24,28,31 Figs.6-9, Col.1 Line 9-Col.3 Line 11	A

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"&amp;" document member of the same patent family

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CA 2314548 A1	02.02.2001	EP 1074934 A2 JP 2001-075726 A US 6417836 BA	07.02.2001 23.03.2001 09.07.2002
JP 2006-178948 A	06.07.2006	EP 1176559 A2 JP 2002-140705 A2 US 6795068 BA	30.01.2002 17.05.2002 21.09.2004
US 5297061 A	22.03.1994	None	
US 5534917 A	09.07.1996	None	